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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,690	03/12/2002	Inge Johansen	2001_1827A	1301

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WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER	
KERNS, KEVIN P	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/009,690	JOHANSEN ET AL.	
	Examiner	Art Unit	
	Kevin P. Kerns	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,11-14 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,11-14 and 16-18* is/are rejected.

7)☒ Claim(s) *17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 17 is objected to because of the following informalities: in the 4th line, replace "-an" with "an". Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 9, 11, 12, 14, 16, and 17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11, 17, and 25-30 of copending Application No. 10/018,174 in view of Nagai et al. (US 5,205,344).

The claims of the present application and those of copending Application No. 10/018,174 share at least the following similar elements: a steel mold housing having a plurality of channels, permeable wall material, at least one annular slit/nozzle, and a thermally insulating plate provided with through holes, with the exception of the

functional limitations of primary and secondary cooling provided in 10/009,690. One of ordinary skill in the art would have recognized that the structures provided in claims 11, 17, and 25-30 of 10/018,174 would clearly be able to provide increased/decreased cooling to the metal being cast, corresponding to claims 9, 11, 12, 14, 16, and 17 of the present application. The claims of copending Application No. 10/018,174 do not specifically set forth that the thermally insulating plate with through holes includes a protrusion extending in an axial direction.

However, Nagai et al. disclose a horizontal continuous casting device, in which the device includes a tundish 1 containing molten metal 10 to flow through an insulating orifice plate 2 (provided with a protrusion extending in an axial direction of a mold 3) into a mold cavity provided in a mold 3 removably connected to the reservoir 1, such that the mold housing includes a plurality of channels serving as (nozzle) outlets for supply of lubricating oil 5 and water 8 (providing primary and secondary cooling), with an annular slit (annular gap 7) being provided around the circumference of the mold cavity, such that the thermally insulating plate with an axial protrusion is advantageous for providing uniform feeding of lubricating oil through the plurality of radial passages within the axial protrusion in the insulating plate (abstract; column 1, lines 43-68; column 2, lines 1-52; column 3, lines 4-38; column 4, lines 1-16; and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the horizontal continuous casting device disclosed in the claims of copending Application No. 10/018,174, by using the thermally insulating plate that includes a protrusion extending in an axial direction, as taught by

Nagai et al., in order to provide uniform feeding of lubricating oil through the plurality of radial passages within the axial protrusion in the insulating plate (Nagai et al.; abstract; column 1, lines 6-8 and 43-46; column 2, lines 3-42; and column 3, lines 34-37).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 9, 11-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (US 5,205,344) in view of Kittilsen et al. (US 5,915,455).

Nagai et al. disclose a horizontal continuous casting device, in which the device includes a tundish 1 containing molten metal 10 to flow through an insulating orifice plate 2 (provided with a protrusion extending in an axial direction of a mold 3) into a mold cavity provided in a mold 3 removably connected to the reservoir 1, such that the mold housing includes a plurality of channels serving as (nozzle) outlets for supply of lubricating oil 5 and water 8 (providing primary and secondary cooling), with an annular slit (annular gap 7) being provided around the circumference of the mold cavity (abstract; column 1, lines 43-68; column 2, lines 1-52; column 3, lines 4-38; column 4, lines 1-16; and Figures 1-5). Nagai et al. do not specifically disclose a permeable wall material (for supply of oil and/or gas) along the interior wall of the mold housing.

However, Kittilsen et al. disclose an apparatus for horizontal casting of light metals, in which the apparatus includes a tundish 3 with a first insulating plate 29 for supplying molten metal M that flows into a steel pipe 28 and into a mold 10, such that the mold 10 has multiple housings (including a first mold housing having a plurality of channels); a second mold housing 26; a thermally insulating annular plate (structures with 21 and 23 written thereon) arranged against the first mold housing; an oil ring 19 with oil supply channels 20 to lubricate the mold; a transition ring of insulating porous refractory material 21 (permeable wall material) to provide heat transfer via oil (from oil ring 19 and oil supply channels 20) and gas from gas supply channels 22 to the interior wall of the mold housing (in the vicinity of metal solidification region 25 and to the left of mold depth parameters L1 and L2); and separate primary and secondary cooling water circuits (11,12) for flow of coolant around the circumference of the mold cavity (abstract;

column 1, lines 55-67; column 2, lines 1-44; column 3, lines 7-67; column 4, lines 1-67; column 5, lines 1-3; and Figures 1 and 2). One of ordinary skill in the art would have recognized that (in addition to the conventional types of mold material -- e.g. aluminum, copper, steel etc.), although the primary cooling is not specifically controlled by valve means, the removal and/or exchanges of several molds having various geometries (having dimensions with axial protrusions, leading to variance in the coolant flow rates through the annular slits/nozzles) were made (easily replaceable) by Kittilsen et al. (in Tables I and II), for the purpose of producing ingots at adequate casting speed with good surface quality (Kittilsen et al.; abstract; column 1, lines 55-67; column 2, lines 1-54; column 3, lines 7-67; column 4, lines 1-27; column 5, lines 20-41; and Figures 1 and 2).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the horizontal continuous casting device disclosed by Nagai et al., by adding the permeable wall material along the interior wall of the mold housing, as taught by Kittilsen et al., in order to produce ingots at adequate casting speed with good surface quality (Kittilsen et al.; abstract; column 1, lines 55-62; column 2, lines 1-34; column 3, lines 18-67; column 4, lines 1-27; and column 5, lines 20-41).

Response to Arguments

7. The examiner acknowledges the applicants' appeal brief received by the USPTO on August 8, 2005. A new objection to claim 17 has been raised by the appeal brief

(see paragraph 1 above). The prior double patenting rejections have been modified to include the Nagai et al. reference (see paragraph 3 above). The applicants' arguments in the appeal brief addressing the Dantzig et al. and Naess, Jr. et al. references are persuasive, such that these previous 35 USC 103(a) rejections have been overcome. Furthermore, the 35 USC 103(a) rejections in view of Kittilsen et al. alone are overcome by the arguments. Claims 9, 11-14, and 16-18 remain under consideration in the application.

8. Applicants' arguments with respect to claims 9, 11-14, and 16-18 have been considered but are moot in view of the new ground(s) of rejection.

As mentioned in the final rejection, the examiner respectfully asserts that Nagai et al. contain all features of the claims except the permeable wall material. As a result, Nagai et al. is now combined with Kittilsen et al., as Kittilsen et al. set forth the permeable wall material (insulating porous refractory material 21) is also disclosed by Kittilsen et al. Although the protrusion dimensions (lengths) are not specifically disclosed by Kittilsen et al., the tables (Tables I and II) show removal/exchange of several molds of differing geometries, which will vary with respect to the protrusions remaining on the portions to which the horizontal mold attaches.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571)

272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns Kevin Kerns 9/28/05
Primary Examiner
Art Unit 1725

KPK
kpk
September 28, 2005